

In the Claims:

Claim 1-13 (Cancelled).

Claim 14 (Currently Amended). An immersion nozzle for continuous casting of steel, having said nozzle comprising:

a wall surface defining an inner hole to allow molten steel to flow through said inner hole;

provided with a swirl vane disposed in said inner hole for generating a swirling flow in the molten steel passing therethrough by said swirl vane[.,.];

said inner hole having

a wall surface adapted to come into contact with the molten steel during use, at least a part of wall surface being formed of a refractory layer containing CaO and MgO forming at least a part of said wall surface upstream of said swirl vane, said refractory layer being prepared by controlling a weight ratio of each of CaO and MgO in said refractory layer[.,.] and an apparent porosity.

Claim 15 (Currently Amended). The immersion nozzle as defined in according to claim 14, wherein:

said CaO-MgO-containing refractory layer contains a carbonaceous material[.,.];

wherein a sum of respective chemical composition of MgO and CaO in said refractory layer is at least 65 mass % or more; and

a weight ratio of CaO [./] to MgO is in the range of 0.4:1 to 2.3:1.

Claim 16 (Currently Amended). The immersion nozzle as defined in according to claim 15, wherein said CaO-MgO-containing refractory layer is formed as a tubular-shaped refractory layer having an apparent porosity of 5 to 25 % and a thickness of 3 to 20 mm.

Claim 17 (Currently Amended). The immersion nozzle ~~as defined in~~ according to claim 15, wherein said carbonaceous material ~~is contained in~~ forms from 1 to 35 mass percent of said CaO-MgO-containing refractory layer in the range of 1 to 35 mass %.

Claim 18 (Currently Amended). The immersion nozzle ~~as defined in~~ according to claim 15, wherein said CaO-MgO-containing refractory layer contains ~~no more than~~ 5 mass % or less of at least one antioxidant selected from the group consisting of B₄C, SiC, Al, and Si.

Claim 19 (Currently Amended). The immersion nozzle ~~as defined in~~ according to claim 14, wherein said swirl vane is prepared by twisting ~~has a spiral shape and is formed by a twisted tape-shaped tape of~~ refractory material, ~~said tape being twisted~~ at an angle of 80 to 180 degrees ~~on the basis of~~ ~~to~~ a horizontal plane, ~~in such a manner as to be formed in a spiral shape.~~

Claim 20 (Currently Amended). The immersion nozzle ~~as defined in~~ according to claim 14, wherein:

~~the~~ said wall surface of ~~said inner hole~~ is partially formed with a tier ~~or convex~~ portion; and

~~said~~ swirl vane is fixed to ~~said tier~~ ~~or convex~~ portion.

Claim 21 (Currently Amended). The immersion nozzle ~~as defined in~~ according to claim 14, ~~which has~~ wherein ~~said wall surface has~~ a gas injection port ~~located~~ formed therein; ~~said~~ gas injection port being disposed on an upstream side ~~relative to~~ said swirl vane.

Claim 22 (Currently Amended). The immersion nozzle ~~as defined in~~ according to claim 14, wherein said CaO-MgO-containing refractory layer ~~is formed to serve as the entire~~ covers an entirety of ~~said wall surface of~~ ~~said inner hole~~ including a portion of ~~said wall surface~~ on a downstream side ~~relative to~~ said swirl vane.

Claim 23 (Currently Amended). The immersion nozzle ~~as defined in~~ according to claim [1] 14, wherein said swirl vane is disposed in ~~said inner hole~~ on an upstream side ~~relative to a position corresponding to~~ a powder line.

Claim 24 (Currently Amended). The immersion nozzle as defined in according to claim 21, wherein:

said wall surface has a slit formed therein behind said refractory layer connected to said gas injection port; and

said wall surface has a gas feed port formed therein connected to said slit, said gas feed port, said slit, and said gas injection port being configured to feed : said CaO-MgO-containing refractory layer is formed as a tubular-shaped refractory layer, wherein said immersion nozzle is designed such that a gas inert relative to steel is supplied into the molten steel passing through said inner hole, from a gas injection port disposed on an upstream side relative to said swirl vane, through a space formed on the side of a back surface of said tubular-shaped refractory layer from a gas feed port formed in the immersion nozzle.

Claim 25 (Currently Amended). A method for continuous casting of steel, which comprises:

-using a continuous casting nozzle having an inner hole which is provided with a swirl vane for generating a swirling flow in molten steel passing therethrough, and defined by a wall surface adapted to come into contact with the molten steel during use, at least a part of said wall surface being formed of a tubular-shaped refractory layer, wherein:

providing an immersion nozzle according to claim 14; and

said steel is flowing clean molten steel through said immersion nozzle; and

said refractory layer contains a carbonaceous material, MgO and CaO, wherein a total amount of MgO and CaO is 65 mass % or more, and a weight ratio of CaO / MgO is in the range of 0.4 to 2.3, said refractory layer having an apparent porosity of 5 to 25 %.

Claim 26 (Currently Amended). The A method as defined in claim 25, which including for continuous casting of steel, which comprises:

providing an immersion nozzle according to claim 21;

flowing molten steel through said immersion nozzle; and

injecting inert gas into the molten steel passing through said inner hole, from a via said gas injection port ~~which is formed in said continuous casting nozzle including an upper nozzle associated with a molten steel vessel, at a position on an upstream side relative to said swirl vane.~~

Claim 27 (New). The immersion nozzle according to claim 14, wherein:

 said wall surface is partially formed with a convex portion; and

 said swirl vane is fixed to said convex portion.

Claim 28 (New). The immersion nozzle according to claim 24, wherein said refractory layer is tube shaped.

Claim 29 (New). The method according to claim 25, wherein the molten steal is clean.

Claim 30 (New). The method according to claim 26, wherein the molten steal is clean.

Claim 31 (New). The method according to claim 26, which further comprises positioning a molten steel vessel for supplying the molten steel upstream said swirl vane and said gas injection port.